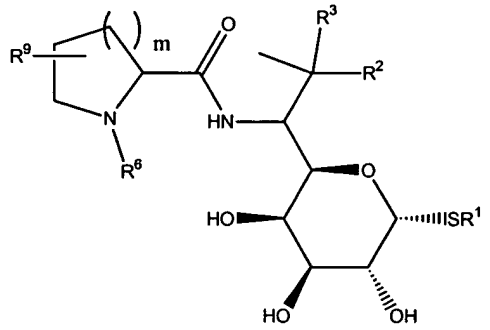
CLAIMS

WHAT IS CLAIMED IS:

1. A compound of formula (I):



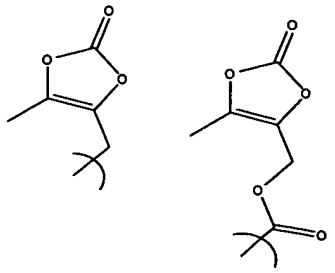
(I)

wherein:

R^1 is alkyl;

R^2 and R^3 are independently H, alkyl, hydroxy, fluoro, or cyanoalkyl or one of R^2 and R^3 is $=NOR^7$ and the other is absent, or one of R^2 and R^3 is $=CH_2$ and the other is absent, with the provisos that both R^2 and R^3 are not H; when one of R^2 and R^3 is fluoro, the other is not hydrogen or hydroxy; and when one of R^2 and R^3 is hydroxy, the other is not fluoro, hydrogen, or hydroxy;

R^6 is selected from the group consisting of H, alkyl, hydroxyalkyl, -C(O)O-alkylene-cycloalkyl, -C(O)O-alkylene-substituted cycloalkyl, -C(O)O-alkyl, -C(O)O-substituted alkyl, -C(O)O-aryl, -C(O)O-substituted aryl, -C(O)O-heteroaryl, -C(O)O-substituted heteroaryl, $-[C(O)O]_p$-alkylene-heterocycle, $-[C(O)O]_p$-alkylene-substituted heterocycle, wherein p is 0 or 1 with the proviso that -C(O)O-substituted alkyl does not include the following:



R^7 is H or alkyl;

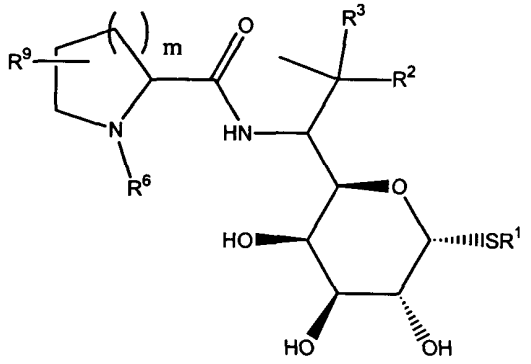
R^9, which can be singly or multiply substituted in the ring on the same or different carbons, is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkoxyalkoxy, cycloalkyl, substituted cycloalkyl, alkoxyalkoxy, substituted oxygen, substituted nitrogen, halogen, phenyl, substituted phenyl, $-(CH_2)_n-OH$, $-(CH_2)_n-NR^4R^5$, -alkylene-R^a where R^a is selected from monofluorophenyl and monochlorophenyl, and branched chain isomers thereof wherein n is an integer of from 1 to 8 inclusive and R^4 and R^5 are H or alkyl; and

m is 1 or 2; and

prodrugs, tautomers or pharmaceutically acceptable salts thereof;

with the proviso that the compound of formula I has a minimum inhibition concentration of 32 μg/mL or less against at least one of the organisms selected from the group consisting of *Streptococcus pneumoniae, Staphylococcus aureus, Staphylococcus epidermidis, Enterococcus faecalis, Enterococcus faecium, Haemophilus influenzae, Moraxella catarrhalis, Escherichia coli, Bacteroides fragilis, Bacteroides thetaiotaomicron, and Clostridium difficile.*

2. A compound of formula (II)



(II)

wherein:

R^1 is alkyl;

R^2 and R^3 are independently H, alkyl, or cyanoalkyl, with the proviso that both R^2 and R^3 are not H;

R^6 is H, alkyl, or hydroxyalkyl;

R^9, which can be singly or multiply substituted in the ring on the same or different carbons, is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkoxyalkoxy, cycloalkyl, substituted cycloalkyl, alkoxyalkoxy, substituted oxygen, substituted nitrogen, halogen, phenyl, substituted

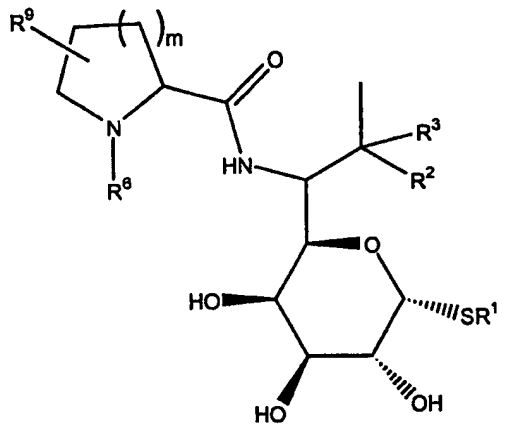
phenyl, -$(CH_2)_n$-OH, -$(CH_2)_n$-NR^4R^5, -alkylene-R^a where R^a is selected from monofluorophenyl and monochlorophenyl, and branched chain isomers thereof wherein n is an integer of from 1 to 8 inclusive and R^4 and R^5 are H or alkyl; and

m is 1 or 2; and

prodrugs and pharmaceutically acceptable salts thereof;

with the proviso that the compound of formula II has a minimum inhibition concentration of 32 μg/mL or less against at least one of the organisms selected from the group consisting of *Streptococcus pneumoniae, Staphylococcus aureus, Staphylococcus epidermidis, Enterococcus faecalis, Enterococcus faecium, Haemophilus influenzae, Moraxella catarrhalis, Escherichia coli, Bacteroides fragilis, Bacteroides thetaiotaomicron, and Clostridium difficile.*

3. A compound of formula (III):



(III)

wherein:

R^1 is alkyl;

R^2 and R^3 are fluoro;

R^6 is H, alkyl, or hydroxyalkyl;

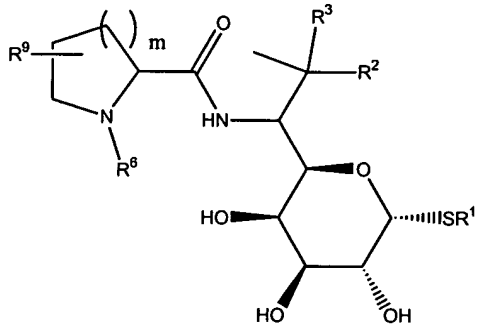
R^9, which can be singly or multiply substituted in the ring on the same or different carbons, is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkoxyalkoxy, cycloalkyl, substituted cycloalkyl, alkoxyalkoxy, substituted oxygen, substituted nitrogen, halogen, phenyl, substituted phenyl, -$(CH_2)_n$-OH, -$(CH_2)_n$-NR^4R^5, -alkylene-R^a where R^a is selected from monofluorophenyl and monochlorophenyl, and branched chain isomers thereof wherein n is an integer of from 1 to 8 inclusive and R^4 and R^5 are H or alkyl; and

m is 1 or 2; and

prodrugs and pharmaceutically acceptable salts thereof,

with the proviso that the compound of formula III has a minimum inhibition concentration of 32 μg/mL or less against at least one of the organisms selected from the group consisting of *Streptococcus pneumoniae, Staphylococcus aureus, Staphylococcus epidermidis, Enterococcus faecalis, Enterococcus faecium, Haemophilus influenzae, Moraxella catarrhalis, Escherichia coli, Bacteroides fragilis, Bacteroides thetaiotaomicron, and Clostridium difficile.*

4. A compound of formula (IV):



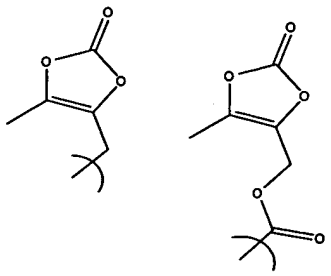
(IV)

wherein:

R^1 is alkyl;

R^2 and R^3 are independently H, or alkyl, hydroxy, fluoro, or cyanoalkyl or one of R^2 and R^3 is $=NOR^7$ and the other is absent, or one of R^2 and R^3 is $=CH_2$ and the other is absent, with the provisos that both R^2 and R^3 are not H; when one of R^2 and R^3 is fluoro, the other is not hydrogen or hydroxy; and when one of R^2 and R^3 is hydroxy, the other is not fluoro, hydrogen, or hydroxy;

R^6 is selected from the group consisting of -C(O)O-alkylene-cycloalkyl, -C(O)O-alkylene-substituted cycloalkyl, -C(O)O-alkyl, -C(O)O-substituted alkyl, -C(O)O-aryl, -C(O)O-substituted aryl, -C(O)O-heteroaryl, -C(O)O-substituted heteroaryl, $-[C(O)O]_p$-alkylene-heterocycle, $-[C(O)O]_p$-alkylene-substituted heterocycle, wherein p is 0 or 1 with the proviso that -C(O)O-substituted alkyl does not include the following:



R^7 is H or alkyl;

R^9, which can be singly or multiply substituted in the ring on the same or different carbons, is independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkoxyalkoxy, cycloalkyl, substituted cycloalkyl, alkoxyalkoxy, substituted oxygen, substituted nitrogen, halogen, phenyl, substituted phenyl, $-(CH_2)_n-OH$, $-(CH_2)_n-NR^4R^5$, -alkylene-R^a where R^a is selected from monofluorophenyl and monochlorophenyl, and branched chain isomers thereof wherein n is an integer of from 1 to 8 inclusive and R^4 and R^5 are H or alkyl; and

m is 1 or 2; and

prodrugs, tautomers or pharmaceutically acceptable salts thereof;

with the proviso that the compound of formula I has a minimum inhibition concentration of 32 μg/mL or less against at least one of the organisms selected from the group consisting of *Streptococcus pneumoniae, Staphylococcus aureus, Staphylococcus epidermidis, Enterococcus faecalis, Enterococcus faecium, Haemophilus influenzae, Moraxella catarrhalis, Escherichia coli, Bacteroides fragilis, Bacteroides thetaiotaomicron, and Clostridium difficile.*

5. A compound of claim 1, wherein R^9 is H, alkyl, or substituted alkyl.

6. A compound of claim 1, wherein R^1 is methyl.

7. A compound selected from the group consisting of:

1-(4-ethylpiperid-6-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(-4-n-propyl-N-methylpyrrolidin-2-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide ;

1-(-4-n-propyl-N-methylpyrrolidin-2-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methyl-3-cyanoprop-1-yl}acetamide;

1-(-4-ethylpiperidyl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-hydroxy-2-methylprop-1-yl}acetamide;

1-(-4-n-propyl-N-methylpyrrolidin-2-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-hydroxyiminoprop-1-yl}acetamide;

1-(-4-n-propyl-N-methylpyrrolidin-2-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methoxyiminoprop-1-yl}acetamide;

1-(-3-n-butylpiperid-6-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide ;

1-(4-n-pentylpyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4- (3-methylbut-1-yl)pyrrolidin-2-yl]-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(-4-n-pentylpyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(-4-n-propyl-N-methylpyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2,2-difluoroprop-1-yl}acetamide ;

1-(-4-n-pentylpyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2,2-difluoroprop-1-yl}acetamide ;

1-(-4-(3-p-fluorophenyl)prop-1-ylpyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-(3,3-difluoroprop-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(-4-(3-p-chlorophenyl)prop-1-ylpyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-(2,2-difluoropent-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide ;

1-(-4-n-propylpiperid-6-yl)-N-{1- [3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-pentyl-N-(2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-pentyl-N-(2-(R)-methyl-2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-pentyl-N-(2-(S)-methyl-2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(-4-n-pentyl-N-(3-hydroxyprop-1-yl)pyrrolidin-2-yl)-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4- (3-methylbut-1-yl)-N-(2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4- (3,3-difluoroprop-1-yl)-N-(2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-pentyl-N-(2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2,2-difluoroprop-1-yl}acetamide;

1-(4-n-pentylpiperid-6-yl)-N-{ [3, 4, 5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-(1-ethylprop-1-yl)piperid-6-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-iso-propylpiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-n-butylpiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-cyclohexylpiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-ethyl-N-hydroxyethyl-piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-n-pentyl-N-hydroxyethyl-piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-n-propyl-N-hydroxyethyl-piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-propyl-N-(F-moc)-piperid-6-yl]-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-propyl-N-(carboxylic acid ethyl ester)-piperid-6-yl]-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-propyl-N-(carboxylic acid phenyl ester)-piperid-6-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4- (4,4-difluoropent-1-yl) pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-(3,3-difluorobut-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-(3,3-difluoropent-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-(3,3-difluoropent-1-yl)-N-(2-hydroxyeth-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6- (methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(2,2-difluoroeth-1-yl)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(3,3-difluoroprop-1-yl)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(5,5-difluoropent-1-yl)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(5-fluoropent-1-yl)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(4-fluorobut-1-yl)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(3-ethyl-3-hydroxypent-1-yl)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-butoxypiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-pentoxypiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(4-fluorobutoxy)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-butylprop-1-yl)pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methyl-allyl}acetamide;

1-(4-ethyl-N-ethyl-piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(3-fluoropropoxy)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-(3,3,3-trifluoropropoxy)piperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-iso-butylpiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-(4-n-propylpiperid-6-yl)-N-{ 1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2,2-difluoro-prop-1-yl}acetamide;

1-[4-n-propyl-4-fluoro-pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

1-[4-n-butyl-4-fluoro-pyrrolidin-2-yl]-N-{1-[3,4,5-trihydroxy-6-(methylthio)tetrahydropyran-2-yl]-2-methylprop-1-yl}acetamide;

4-Fluoro-4-propyl-pyrrolidine-2-carboxylic acid [2-hydroxy-1-(3,4,5-trihydroxy-6-methylsulfanyl-tetrahydro-pyran-2-yl)-propyl]-amide;

4-Fluoro-4-propyl-pyrrolidine-2-carboxylic acid [2-hydroxy-1-(3,4,5-trihydroxy-6-methylsulfanyl-tetrahydro-pyran-2-yl)-propyl]-amid; and

and prodrugs, tautomers and pharmaceutically acceptable salts thereof.

8. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a therapeutically effective amount of a compound of any one of claims 1 - 7.

9. A method for the treatment of a microbial infection in a mammal comprising administering to the mammal a therapeutically effective amount of a compound of any one of claims 1 - 7.

10. The method according to claim 9, wherein the compound is administered to the mammal orally, parenterally, transdermally, topically, rectally, or intranasally in a pharmaceutical composition.

11. The method according to claim 9, wherein the compound is administered in an amount of from about 0.1 to about 100 mg/kg of body weight/day.